

11 by weight of thermoplastic components,
12 and wherein a basis weight of said mat falls within the range of 68 to 339
13 gm/square meters, and wherein the reinforcement fibers are selected from the
14 group consisting of carbon; glass; para-amid; ceramics; metals; high temperature
15 thermoplastics; thermosets; liquid crystal polymer fibers; ultra high molecular
16 weight polyethylene and natural or synthetic spider web.

1 37. (Currently Amended) A mat comprising
2 a plurality of discontinuous reinforcement fibers having at least a 90%
3 machining direction orientation;
4 and
5 a thermoplastic component selected from the group consisting of
6 polyethylene, polypropylene, polyethylene terephthalate (PET), polyamides,
7 polyethylene naphthalate (PEN), polyetheretherketone (PEEK) and
8 polyetherketoneketone (PEKK),
9 wherein concentration of reinforcement fiber components to thermoplastic
10 components is in a range of 60-70% by weight of reinforcement fibers to 40-30%
11 by weight of thermoplastic components,
12 wherein a basis weight of said mat falls within the range of 68 to 339 gm/square
13 meters, and wherein the reinforcement fibers are selected from the group
14 consisting of carbon; glass; para-amid; ceramics; metals; high temperature
15 thermoplastics; thermosets; liquid crystal polymer fibers; ultra high molecular
16 weight polyethylene and natural or synthetic spider web.

38. (Previously Cancelled)

39. (Currently Cancelled, without prejudice or disclaimer).

1 40. (Currently Amended) A product comprising a plurality of mats, each
2 of said mats comprising
3 a plurality of discontinuous reinforcement fibers having at least a 90%
4 wetlay orientation, and
5 a thermoplastic component selected from the group consisting of

6 polyethylene, polypropylene, polyethylene terephthalate (PET), polyamides,
7 polyethylene naphthalate (PEN), polyetheretherketone (PEEK) and
8 polyetherketoneketone (PEKK),
9 wherein concentration of reinforcement fiber components to thermoplastic
10 components is in a range of 60-70% by weight of reinforcement fibers to 40-30%
11 by weight of thermoplastic components,
12 and wherein a basis weight of each of said mats falls within the range of 68 to 339
13 gm/square meters, and wherein the reinforcement fibers are selected from the
14 group consisting of carbon; glass; para-amid; ceramics; metals; high- temperature
15 thermoplastics; thermosets; liquid crystal polymer fibers; ultra high molecular
16 weight polyethylene and natural or synthetic spider web.

1 41. (Original) The product of claim 40 wherein at least one of said mats
2 has been heated in an oven, compression molded, hot stamped, continuously
3 formed in a belt press, continuously shape-formed by hot roller pressing,
4 continuously shaped by reciprocal stamping, formed through pultrusion, or
5 continuously manufactured to form structural rods, ropes and cables.
6

1 42. (Original) The product of claim 40, wherein each of said mats have
2 different fiber components and fiber orientations.

43. (Currently Cancelled, Withdrawn per Examiner, as non-elected)

1 44. (Original) A mat according to claim 36, wherein the reinforcement
2 fibers are polyacrylonitrile (PAN) carbon.

1 45. (Original) A mat according to claim 36, wherein the reinforcement
2 fibers are pitch carbon.

1 46. (New) The mat of claim 36, wherein the reinforcement fibers have
2 fiber lengths in a range of about 0.6 cm to 6.35 cm.

1 47. (New) The mat of claim 46, wherein the reinforcement fibers have
2 fiber lengths in a range of 1.9 cm to 3.2 cm.

1 48. (New) The mat of claim 36, wherein the reinforcement fibers adhere
2 to the thermoplastic component.

1 49. (New) The mat of claim 36, wherein the reinforcement fibers are all
2 made of one material and have at least substantially the same length and diameter.

1 50. (New) The mat of claim 36, wherein the reinforcement fibers are made
2 of a mixture of materials, and have different lengths, diameters and
3 compositions.

1 51. (New) The mat of claim 36, wherein the thermoplastic component is
2 selected from the group consisting of fibers, granular particles and flat platelets.

1 52. (New) The mat of claim 36, wherein the thermoplastic component
2 includes fibers with lengths in a range of 0.6 cm to 1.9 cm.

1 53. (New) The mat of claim 36, wherein the thermoplastic component is
2 drawn fibers or undrawn fibers.

1 54. (New) The mat of claim 36, wherein the thermoplastic component is
2 made of the same material and of substantially same size members.

1 55. (New) The mat of claim 36, wherein the thermoplastic component is
2 made of a mixture of materials, of different sizes and melting points.

1 56. (New) The mat of claim 36, further comprising an additional material
2 selected from the group consisting of fillers, antioxidants, coloring agents,
3 electrically-conductive materials, electrically-insulating materials, thermally-
4 conductive materials, thermally-insulating materials, adhesion aids, melt flow
5 modifiers, cross-linking agents, chemically-reactive materials, biologically-